

**PRESENTED BY:**

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# **GIS and Data Visualization**

*HSRG is responsible for collecting, maintaining, storing, and analyzing crash data captured from law enforcement agencies throughout the state of Louisiana.*



In conjunction with DOTD, we at HSRG are working with new techniques to analyze and display our data.

- Present in a manner the end user can easily identify problem areas
- Supply interactive data techniques
- Provide information which is visual and easy to comprehend



# Crash Analysis

- Year
- Time of Day
- Person Factors
  - Age
  - Gender
  - Race
- Contributing Factors
  - Impaired Driving
  - Unrestrained Occupants
  - Distracted/Inattentive
- Severity Level
  - Fatal
  - Serious/Moderate Injury
- Scale Levels
  - Region
  - Troop
  - Parish
  - City
  - Specific Site Request

# Common Mapping Emphasis Areas



**Infrastructure Crashes**  
Intersection  
Roadway Departure



**Young Driver**



**Pedestrian**



**Impaired Driving**



**Bicycle**



**Seatbelt Use**



**Abnormal Sections**

# **Data Visualization**

Data Dashboards

[Datareports.lsu.edu](http://Datareports.lsu.edu)

# Crash Analysis Map Types

- **Exact Location**

- Displays simple latitude, longitude coordinate points

- **Heatmap**

- Visually represents distribution of crashes over large area
- Graphically highlights areas with highest crash density

- **Hot Spots**

- **Roadway Segments**

- Displays highest crash density within single roadway segment

- **Intersections**

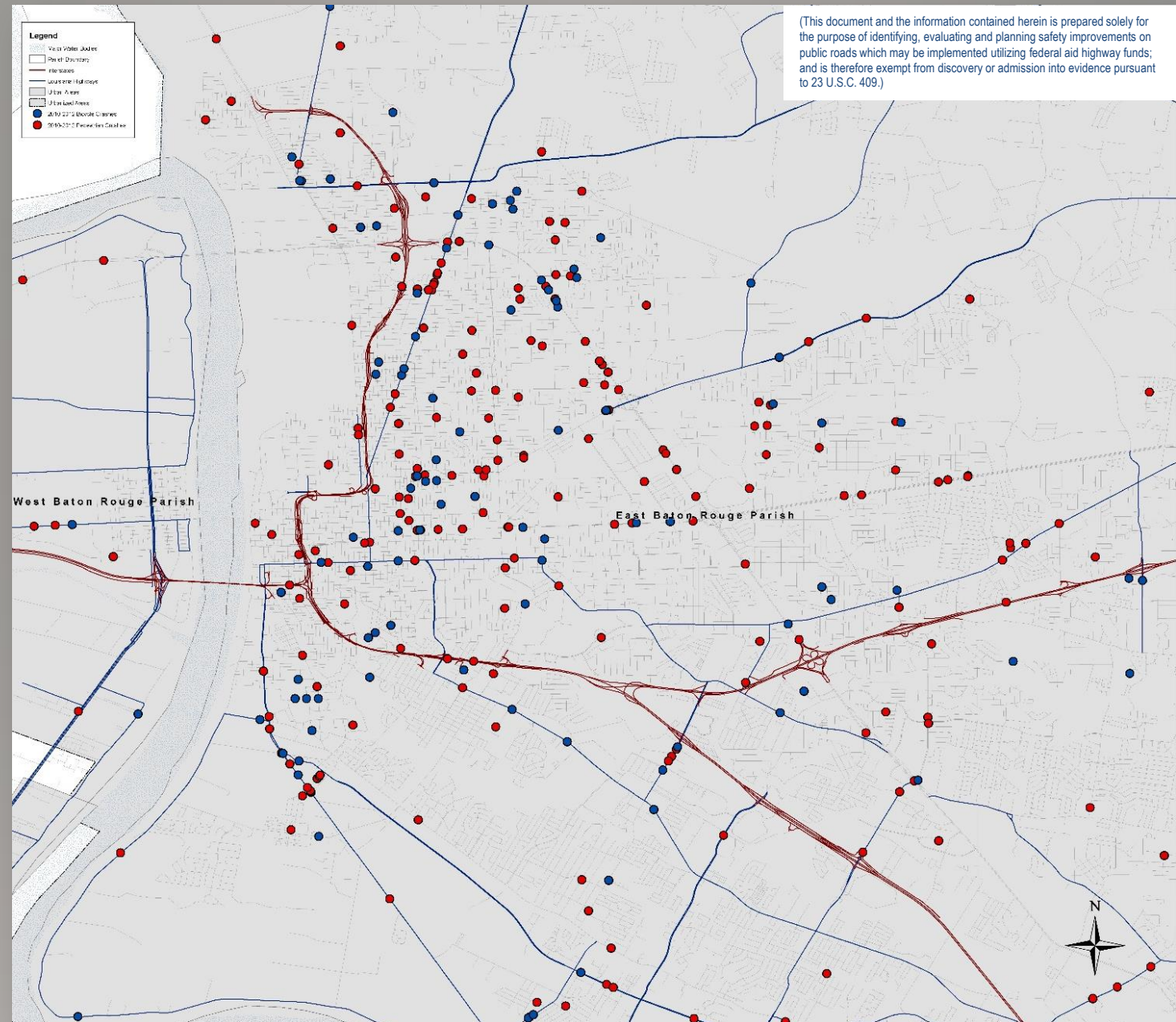
- Highlights intersections within highest crash volume. .

- **Buffers**

- Shows highest densities of crashes within a buffer distance

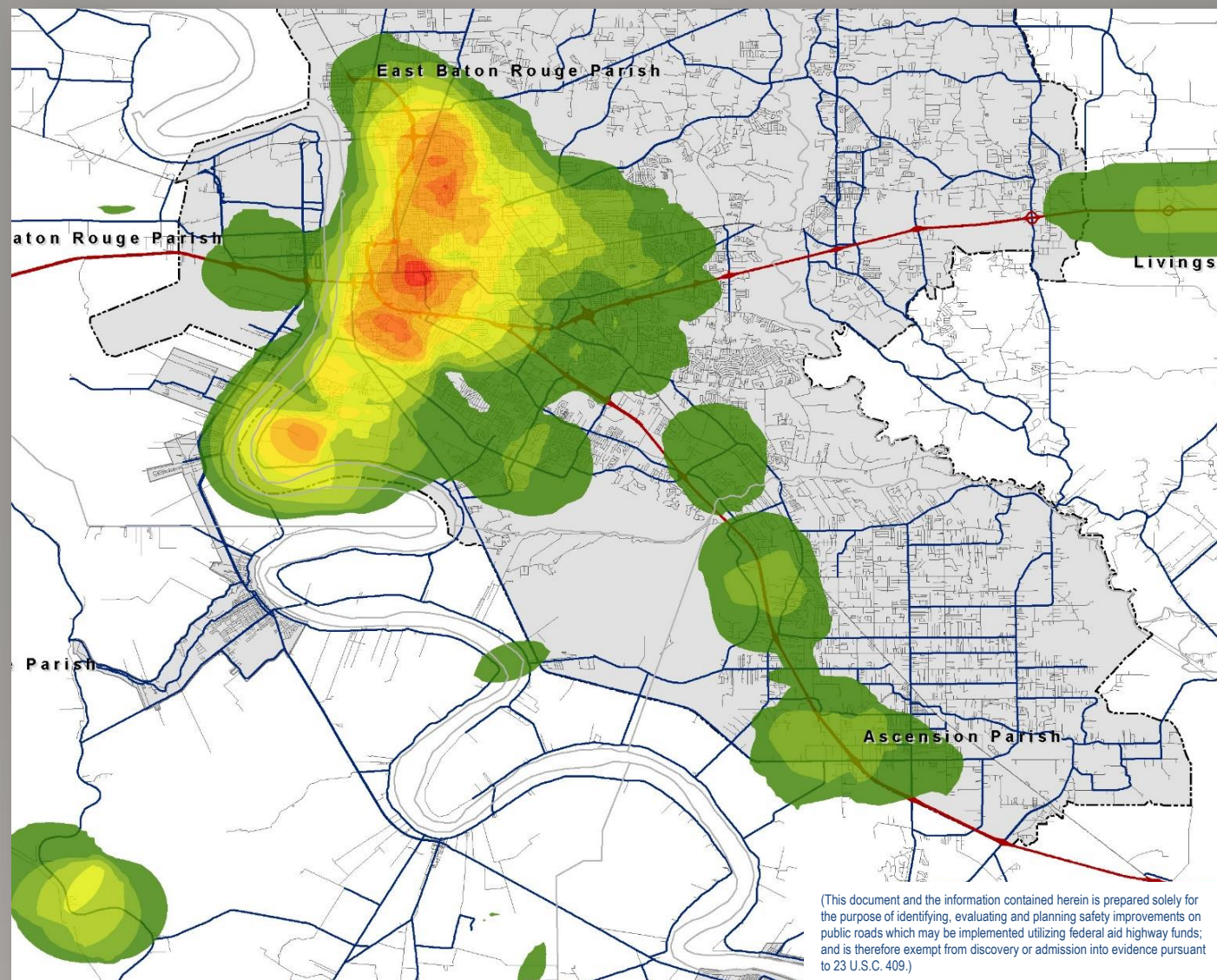
# Exact Crash Location Pedestrian and Bicycle Crashes

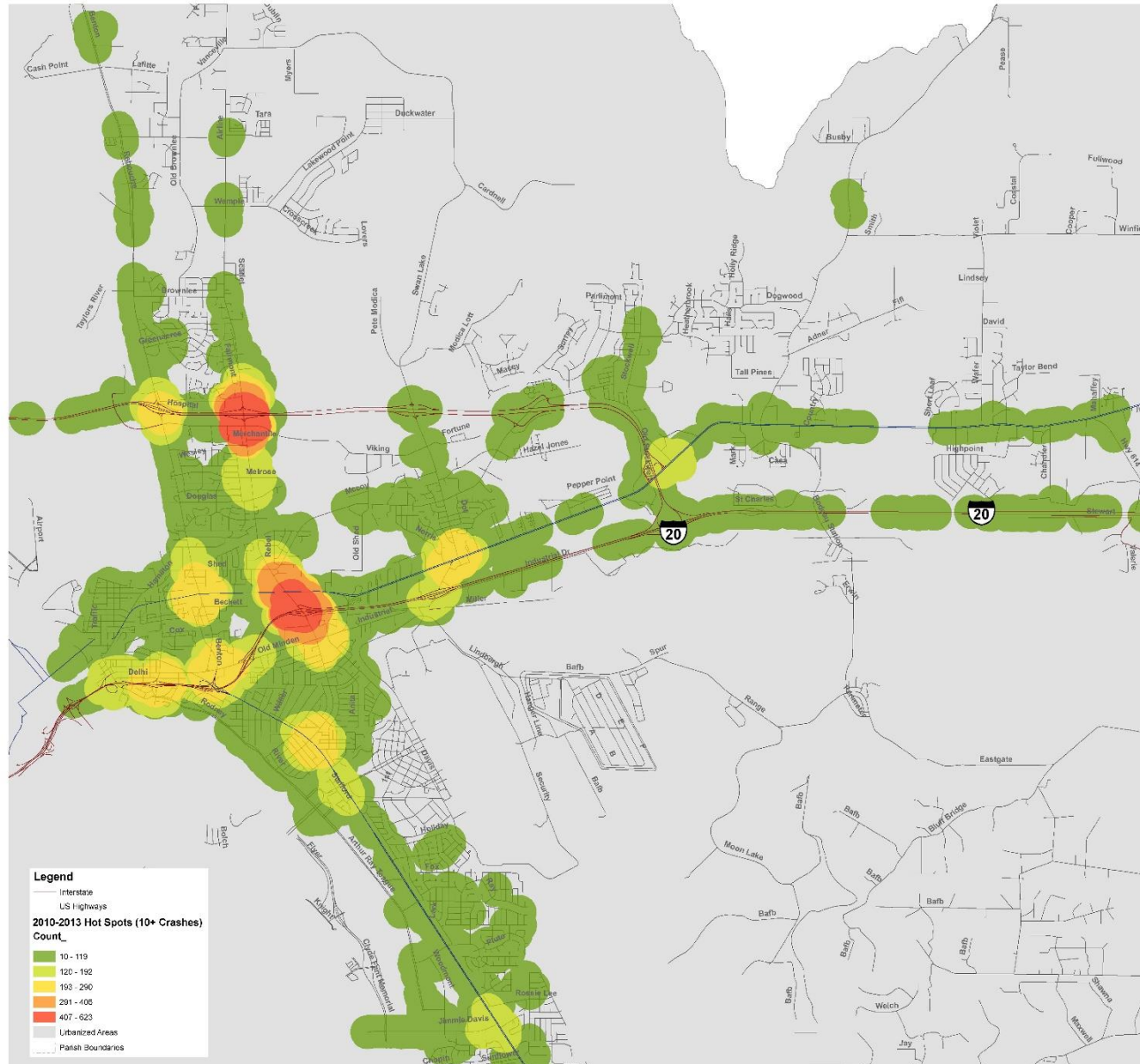
- Displays exact crash location
- Presents multiple factors via symbology



# Heat Map Pedestrian and Bicycle Crashes

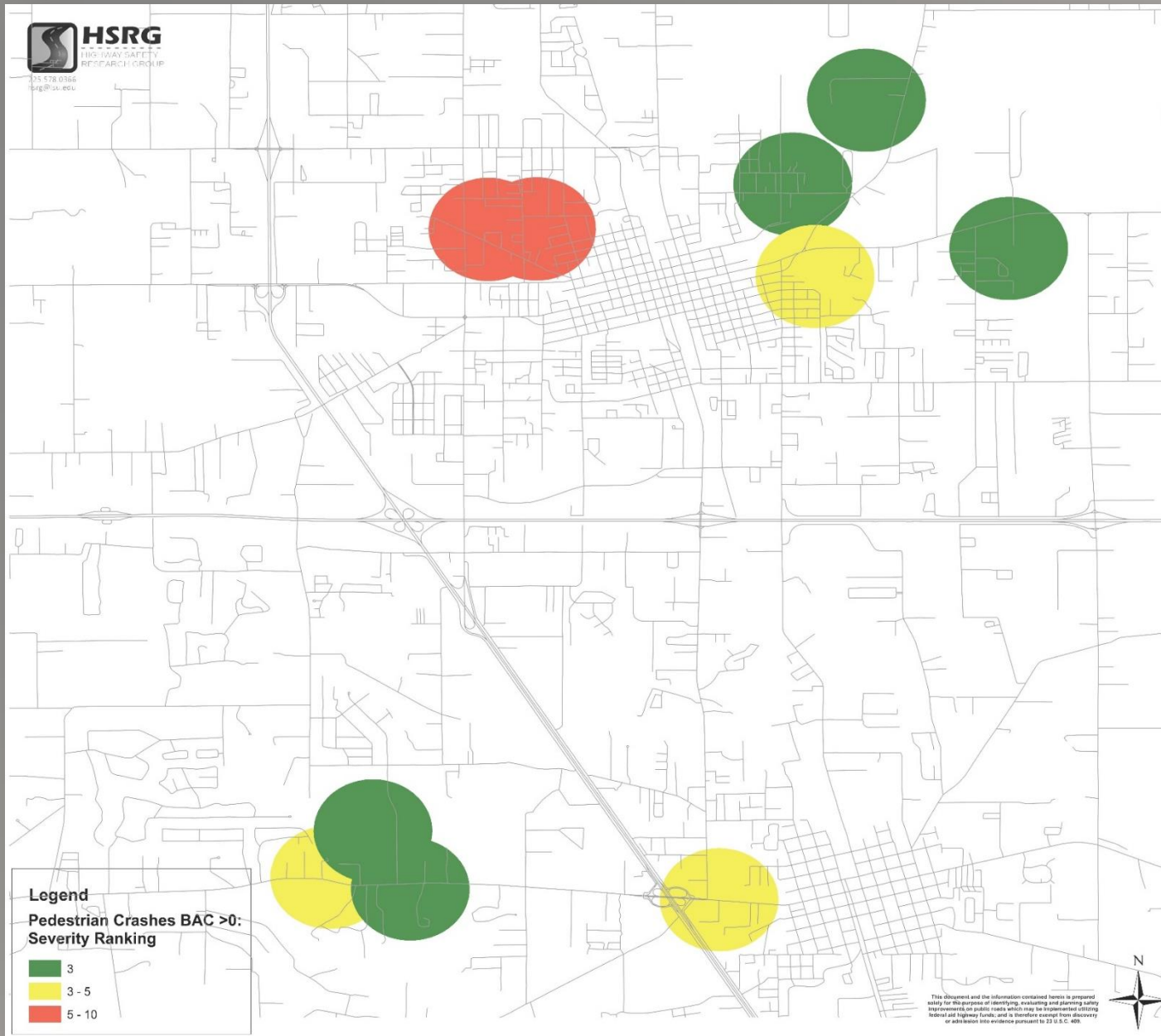
- Displays concentration of pedestrian and bicycle fatal and serious/moderate injury crashes
- Graphically highlights problem spots over large area





# Top Hot Spots

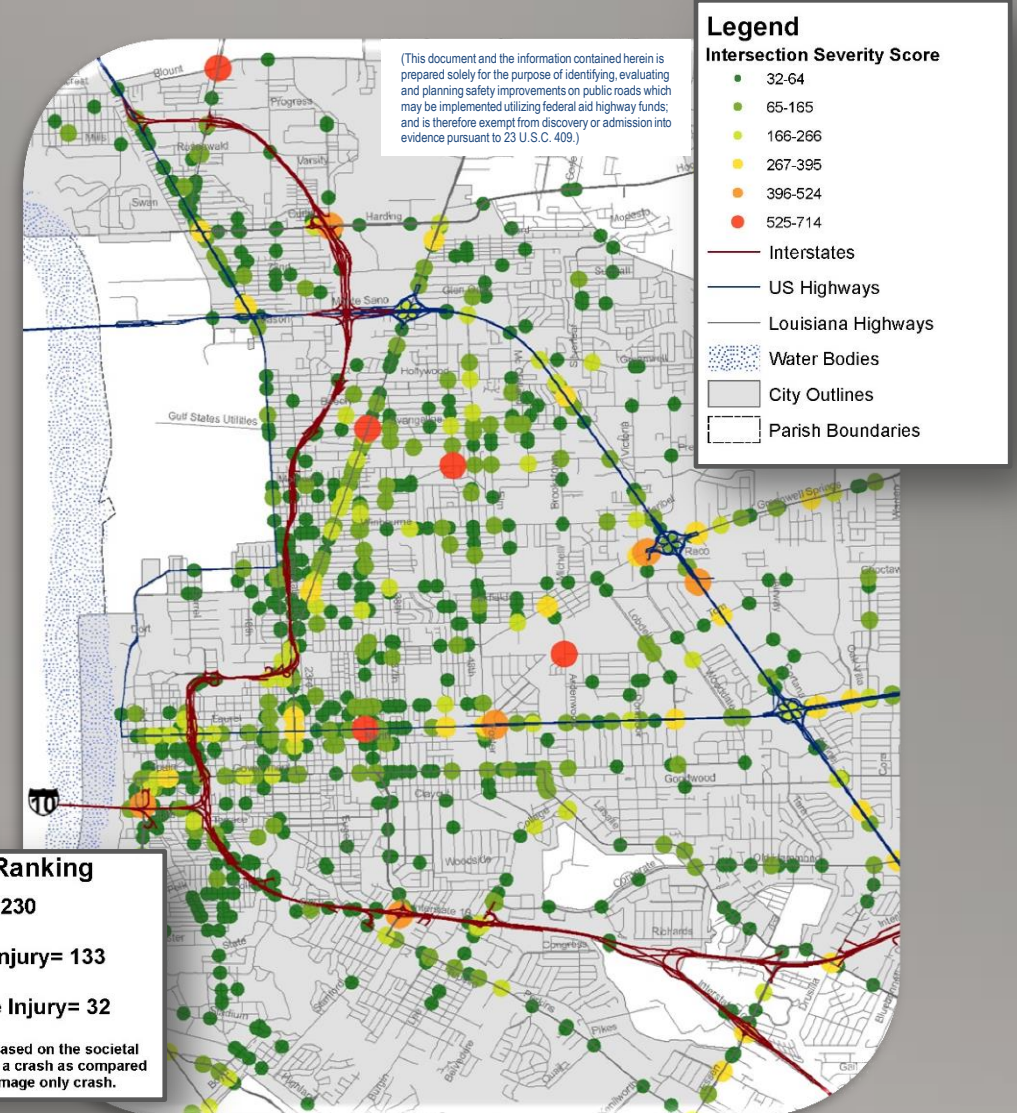
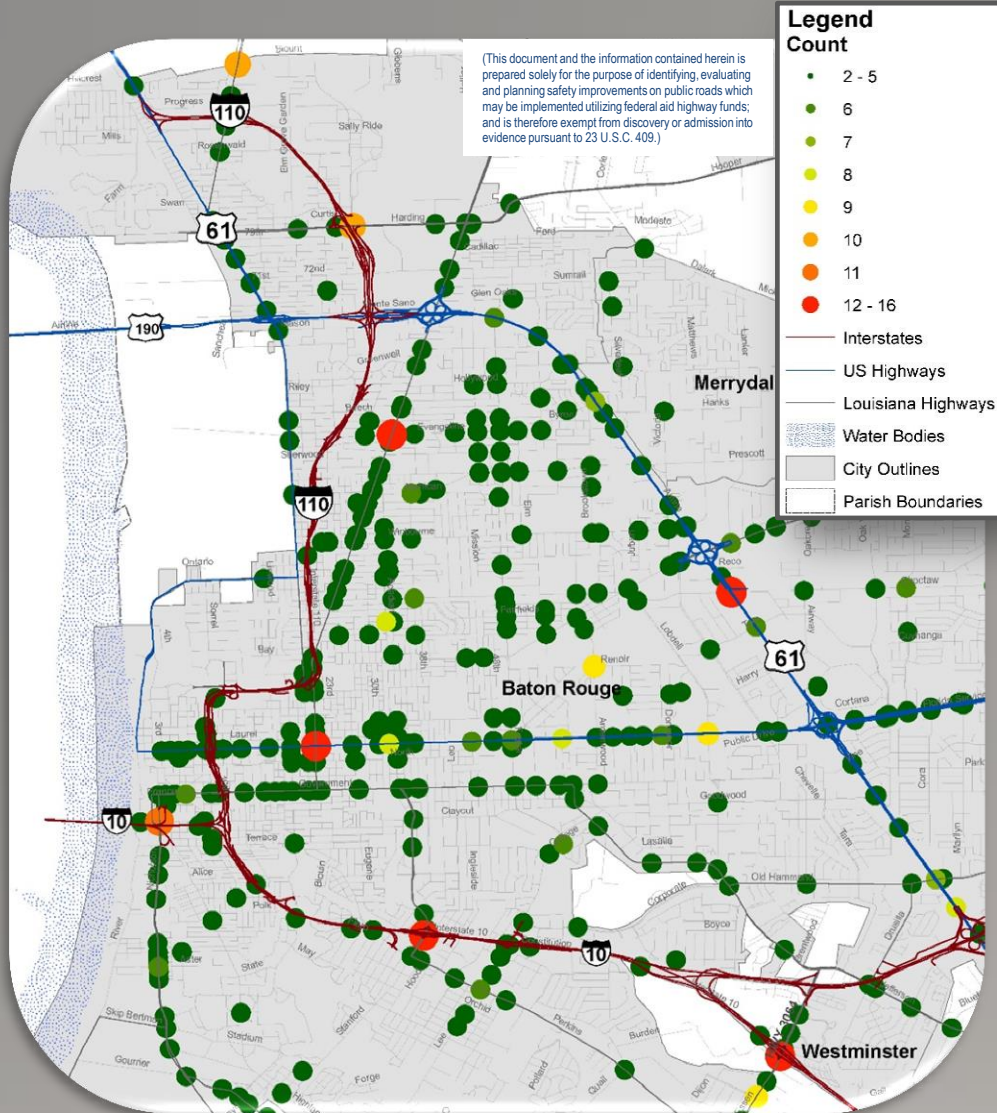
- Displays top areas for all crashes within city limits
- Shows highest densities of crashes within a buffer distance of approx. 1,000M



## Pedestrian Crashes Involving Alcohol Use

- Locations of pedestrian fatal and serious/moderate Injury crashes involving alcohol use
- Points based on crashes within a 150 ft buffer
- buffered points present “weighted” ranking system

# Intersection Injury Severity Hot Spots



## Severity Ranking

1 Fatality= 230

1 Serious Injury= 133

1 Moderate Injury= 32

Severity score based on the societal cost estimate of a crash as compared to a property damage only crash.

## Benefits of Crash Data Analysis Via GIS Mapping

- Identify Problem Locations on an Assortment of Scales For Use by a Variety of Agencies
- Increase Data Complexity and Understanding of a Regions Problems via Visual Methods
- Use Weighted Severity Scores and AADT Data to Determine Problematic and Abnormal Locations
- Allow Analyzed Crash Data to be Easily Accessed
- Users can incorporate analysis in decision making



**Highway Safety Research Group**

# Contact Information

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